



# ***NDIA / TACOM-ARDEC***

## ***7<sup>th</sup> International Artillery and Indirect Fire Symposium and Exhibition***



### ***Brigade Combat Team Program Update***

***LTC Jack Reiff***



***Vanguard For Army Transformation***



PM BCT



BCT Program Update (May 02)





# Brigade Combat Team

*"Vision to Mission"*



***"We Must Provide Early Entry Forces that Can Operate Jointly, Without Access to Fixed Forward Bases, but We Still Need the Power to Slug it Out and Win Decisively."***

**GEN Erik K. Shinseki**

- In Oct 99, the Army Leadership Announced its Vision for the Future. The Vision Included an Immediate and Urgent Need for an Air Transportable Brigade Combat Team (BCT) Capable of
  - Deployment Anywhere on the Globe in a Combat Ready Configuration
  - Strategic Responsiveness & Full Spectrum Versatility Demanded by the Military
  - C-130 Air Deployable
  - Quick Response by a Lethal, Versatile, Tactical Agile Joint Force

***"Develop, Produce, Field and Sustain the Full Range of Safe, Reliable, Supportable and Effective Systems Envisioned by the Brigade Combat Team Organizational and Operational Concept for Initial and Interim Brigades While Developing the Acquisition and Program Management Framework to Transform the Army to the Objective Force."***





# Brigade Combat Team (BCT)

## "Leadership Team"



CSA  
GEN Erik K. Shinseki



SEC Army  
Hon. Thomas E. White

AAE  
Hon. Claude M. Bolton

MilDep AAE  
LTG John S. Caldwell Jr.



TRADOC  
GEN John N. Abrams



PEO GCS  
MG Joseph L. Yakovac



PM, BCT

COL David Ogg

TSM Stryker



COL Chuck Betack

BCT Units



1<sup>st</sup> BCT

3<sup>rd</sup> Bde, 2<sup>nd</sup> ID (Fort Lewis)



4<sup>th</sup> BCT

2<sup>nd</sup> ACR (Fort Polk)



2<sup>nd</sup> BCT

1<sup>st</sup> Bde, 25<sup>th</sup> ID (Fort Lewis)



5<sup>th</sup> BCT

2<sup>nd</sup> Bde, 25<sup>th</sup> ID (Hawaii)



3<sup>rd</sup> BCT

172<sup>nd</sup> Bde, (Separate) (Alaska)



6<sup>th</sup> BCT

56<sup>th</sup> Bde, 28<sup>th</sup> ID (PA NG)

Office of the  
Under Secretary of Defense  
(AT&L)  
Hon E.C. "Pete" Aldridge

Milestone Decision  
Authority

Deputy Project Manager  
Mr. John Gerlach

PM, IAV  
LTC Jim Parker

PM, IAV-CS  
LTC Bryan McVeigh

PM, MGS  
LTC Jack Reiff

Material Director  
LTC Robert Schumitz

Director Acq.Spt Div.  
Mrs. Constance Tucker

Director Log.Spt Div.  
Mr. Barry Crawford

Director Business Mgt Div.  
Mr. Mike Viggato

Director Technical Mgt Div.  
Mr. Terry Dean



# ***GM / GDLS Joint Venture Facilities***

***"We are Family"***



**Lima Army Tank Plant  
(LATP) Lima, Ohio**



**GDLS (17 mile)  
Sterling Heights, Michigan**



**GDLS  
Muskegon, Michigan**



**London Facility  
London, Ontario  
Canada**



**Anniston Army Depot  
Anniston, Alabama**





# Army Transformation

## *"Stryker the Army Vanguard"*



Canadian LAV III



Italian Centauro



MGS

**Stryker**



ICV

**FCS  
Objective Force**



**Objective  
2010 and Beyond**

**Complete Transition to  
Objective Force**

**Initial  
2000-2003**

**Interim  
2003-2010**



German Fox/Fuchs



German Lynx/Luchs

**Organize, Train, Equip, Lift,  
and Use  
Refine O&O  
Develop TTPs**

**Provide Capability Called  
for in the  
O&O, MNS, and IAV ORD**



# Stryker Life Cycle



**FY00 – FY05**

## System Development and Demonstration

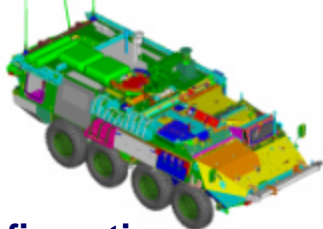
### 2 Variants

- Infantry Carrier Vehicle (ICV)
- Mobile Gun System (MGS)



### 7 Configurations

- Production Ready
- IPT Managed
- USER Evaluation



### 3 Configurations

- Development / Integration
- IPT Managed
- LUT
- PQT
- ▲ Performance RAM

**FY01 - FY04**

## Initial Production & Development



### 8 Configurations

- Infantry Carrier Vehicle (ICV)
- Commander's Vehicle (CV)
- Medical Evacuation Vehicle (MEV)
- Mortar Carrier (MC)
- Anti Tank Guided Missile (ATGM)
- Reconnaissance Vehicle (RV)
- Fire Support Vehicle (FSV)
- Engineer Squad Vehicle (ESV)

### Full-Up Systems Testing

- PVT
- Live Fire
- IOT&E

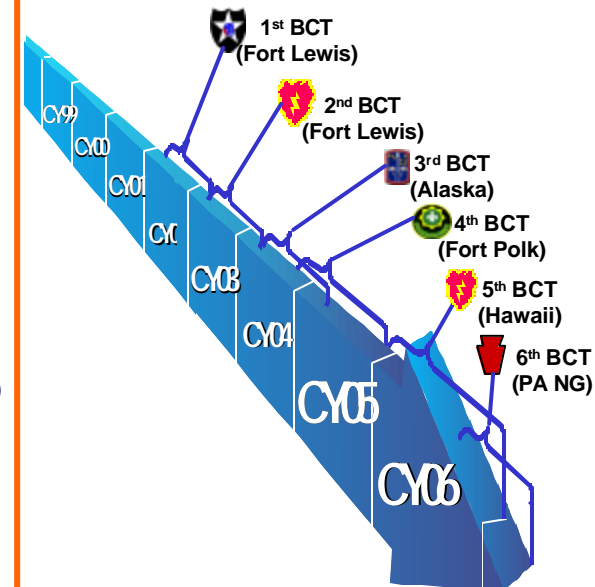
### MS III Full Rate Production

### 2 Configurations (MGS & NBCRV)

- Development / Integration

**FY04 - FY07**

## Full Rate Production and Sustainment



### MS III (MGS & NBCRV)

### Block Improvements





# Key Performance Parameters (System)



<u>KPP</u>	<u>Threshold</u>	<u>Objective</u>	<u>Demonstration</u>
<b>C-130 Transportability</b>	Must be Transportable in a C-130 Aircraft Enter and Exit Aircraft Capable of Immediate Combat Operations (does not require a full basic load).	Must be Transportable in a C-130 Aircraft Enter and Exit Aircraft Capable of Immediate Combat Operations.	Conduct Loading Tests on C-130 at APG, MD Using ICV.
<b>Interoperability</b>	Capable of Hosting and Integrating C4ISR Systems (EPLRS, FBCB2, ABCS). Integrate Specific C4ISR Systems into IAV Platforms IAW Systems Architecture.	Capable of Hosting and Integrating C4ISR Systems	To be Evaluated During IOT&E
<b>Infantry Squad</b>	ICV / ESV when Configured Must Carry an Inf. Sqd. (9 Soldiers) and Two Crew members W/Equip.	ICV / ESV when Configured Must Carry 10 Soldiers and Two Crew members W/Equip.	To be Evaluated During IOT&E. Already Demonstrated on Bid Sample
<b>MGS Lethality</b>	Must Defeat a Standard Infantry Bunker and Create Opening in a Double Reinforced Concrete Wall, Through which Infantry Can Pass	Must Defeat a Standard Infantry Bunker and Create Opening in a Double Reinforced Concrete Wall, Through which Infantry Can Pass	To be Demonstrated During PQT for MGS





# Stryker - Infantry Armored Vehicle

*“Family Commonality and Efficiencies”*



## Key Characteristics: (ICV Variant)

Configuration	Combat (inches)	Shipping (inches)
Height:	122.88	103.62
Width:	116.43	112.80
Length:	286.30	286.50

**Engine:** 350 hp JP-8/Diesel (Caterpillar)

**Transmission:** Allison

**Brakes:** 5 inch ABS (Common with FMTV 5 -Ton)

**Other:** 8 Wheel Drive; 4 Wheel Steering

**Crew:** 2 + 9-man Squad



**Manufacturer:** Joint Venture

Limited Partnership between General Motors (GM)  
and General Dynamics Land Systems (GDLS)

## C4ISR

ABCS Suite

SINCGARS

FBCB2

NTDR (JTRS IBCT #3)

GPS

## Deployability

C-130 – 1 ea

C-17 – 3 ea

C-5 – 4 ea

**Weight:** 38,000 lbs

## Mobility

Top Speed – 60 mph

50m Dash – 9 sec.

Wheel Clearance – 21 in

Vertical Climb – 23 in

Gap Crossing – 78 in

Range – 330 miles (Cbt Ops)

Winch: Self Recovery

## Armament

RWS (50 Cal or MK 19)

M240 7.62 Coax

## Lethality (MGS)

Main gun – 105mm

Will Defeat Hardened

Bunkers & Armored

Vehicles (up to T-62)

## Survivability

High Hard Steel

Structure

Protection: 14.5mm

RPG w/ Add on Armor

Spall Liner

Smoke

## Medical Evaluation

### (MEV)

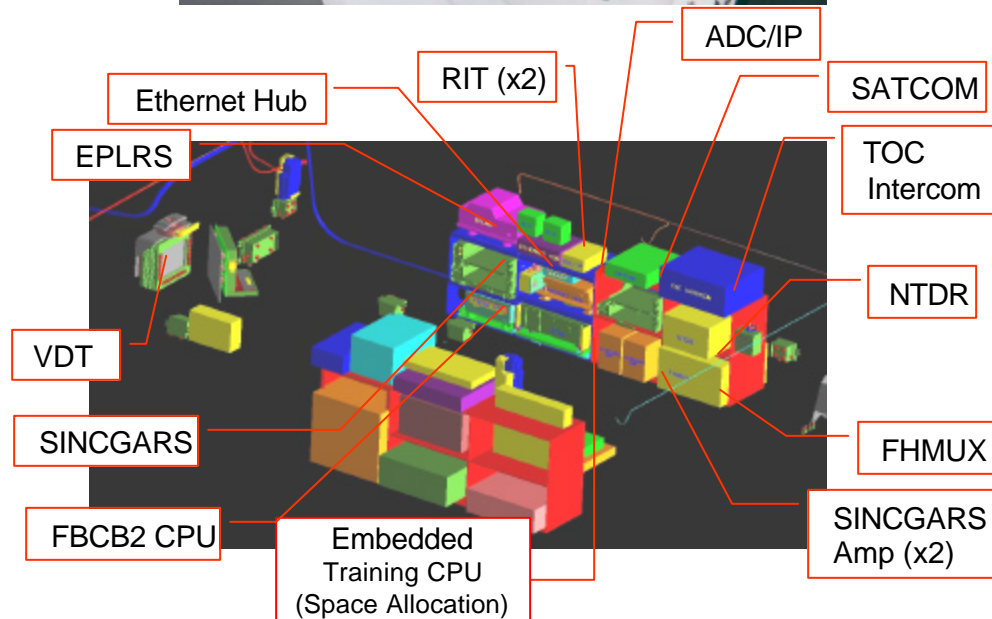
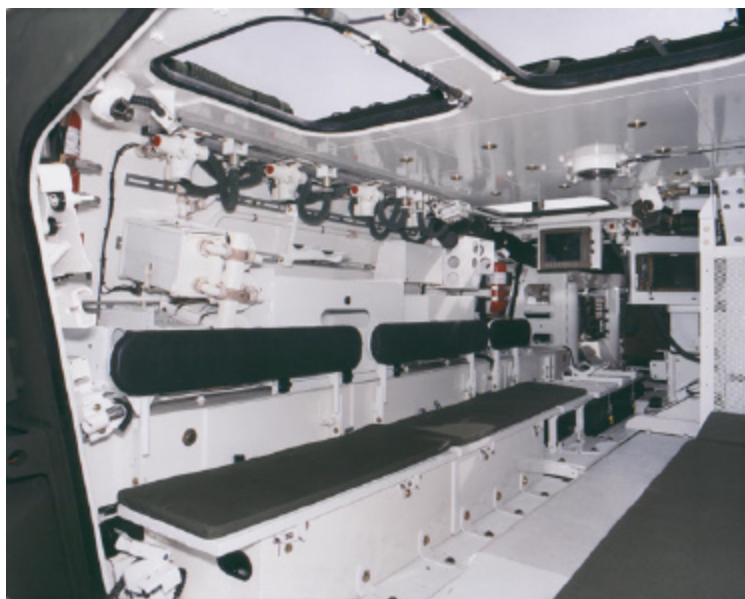
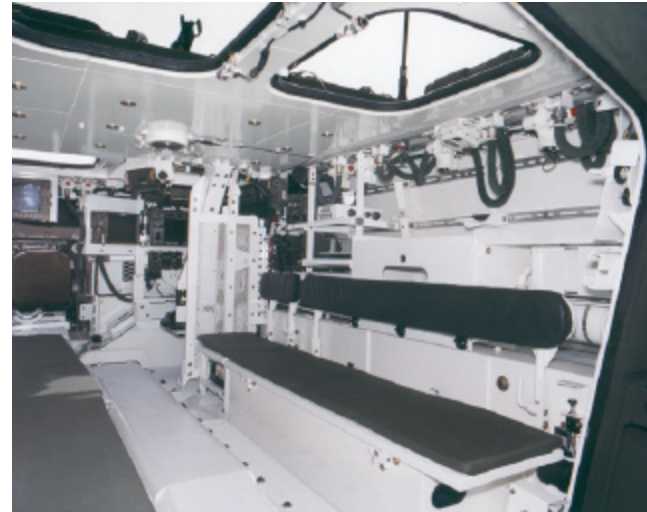
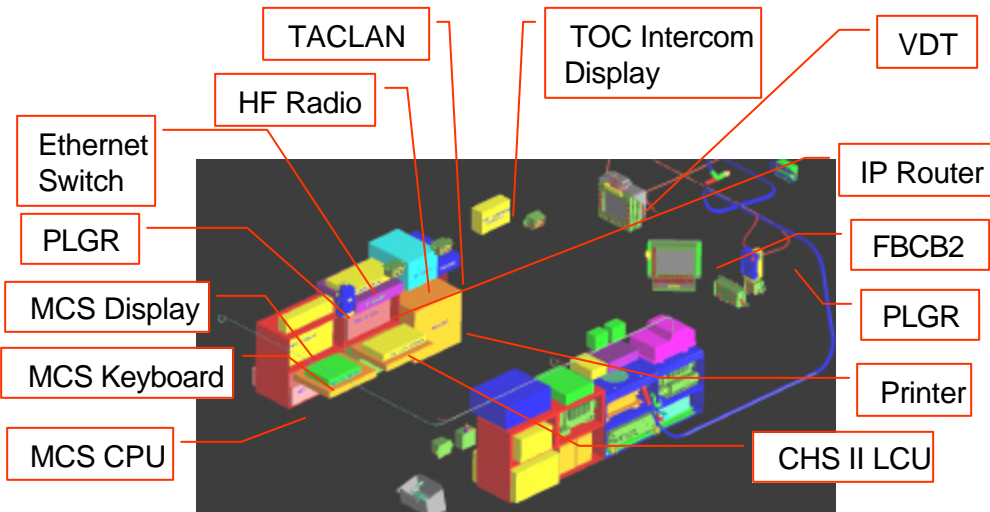
4 Litters or

6 Ambulatory



# Stryker C4ISR

## *"State of the Art C4I Architecture"*





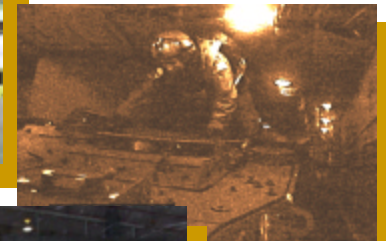


# Stryker Transportability

***“Strategic Responsiveness ... 100% Tactical and Operational Mobility”***



- **Stryker Deployability Requirement**
  - C-130 1ea
  - C-17 3ea
  - C-5 4ea
- **Stryker Must be Transportable in a C-130 Aircraft and Capable of Immediate Combat Operations (KPP)**
  - Vehicle Weight  $\leq$  38,000 lbs
  - Axle Weight  $\leq$  13,000 lbs.
- **PM-BCT Ramp Demo @ APG**
- **MTMC and Air Force Preparing Waiver for ICV Transport on C-130**
  - Passenger Safety Aisles are to be 14" of Clearance on Each Side of Vehicle
- **Final Certification to be Conducted in PVT '02**







# Stryker Mobility

*“It’s not how you Drive, but how you Arrive that Counts”*



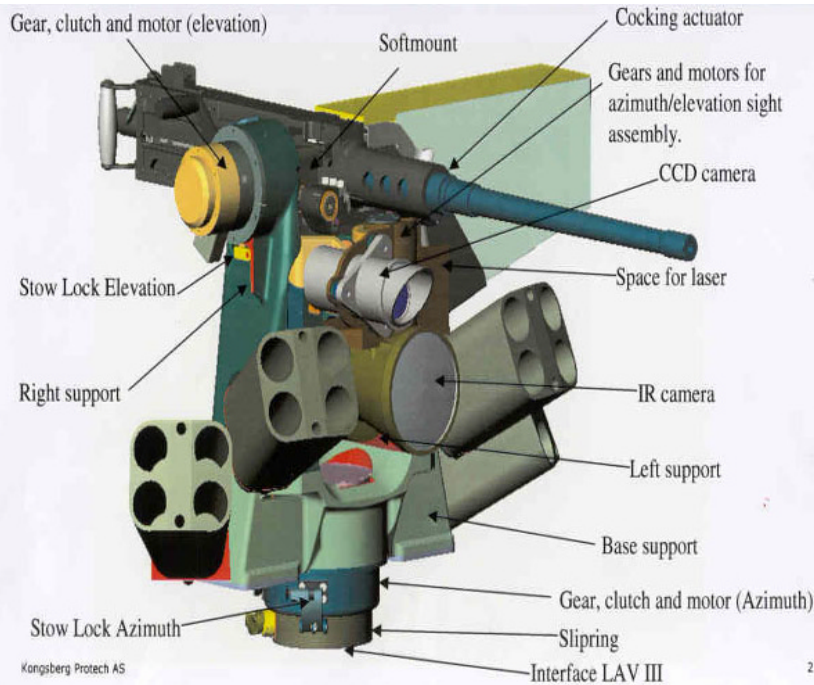
## ■ Automotive

- Sprint Capability - 50 Meters in 9 Seconds
- Sustained Maximum Speed > 60mph
- Cruise at 40mph for 330+ Miles
- 78 in Gap Crossing
- 23 in Vertical Climb
- 53 Gal Fuel Capacity
- 4WD Selectable 8WD
- 2 Speed Transfer Case
- Hydro Pneumatic Suspension
- Height Management System
  - ▲ Air Transport
  - ▲ Load Leveling



# Stryker Armaments

*“Dismounted Infantry Assault Enabled by Fire Support & Platforms”*



Remote Weapon Station

## Weapon

### ➤ Remote Weapon Station

- M2HB .50 cal MG
- Mk19 mod 3 40mm
- M240 7.62mm MG
- M6 Launchers (x4)
- Defeat Light Armored Targets at 1500m
- -20° Depression to + 60° Elevation
- Targets Acquired and Engaged from Under Armor
- Day Camera Target Acq Sight
- Staring Array Thermal Sight
- Height Reduction for Air Transport



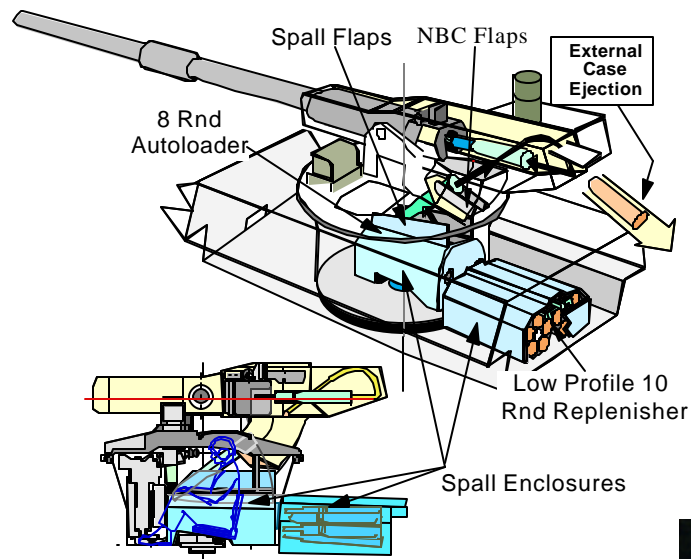
# Stryker Lethality



## ■ Weapon

### ➤ Low Profile Turret

- External M68A1 105mm Gun with Muzzle Brake
- Fires all Current NATO 105mm Ammo
- 8 Shots in 48 Seconds, Static or Moving
- All Ammo Protected by Spall Liners
- Protected 8 Round Autoloader
- Versatile Lethality with Growth
- Stabilized Direct Fire Control
- Low Profile, Side-by-Side Crew



### ➤ MGS Vehicle

- 18 Auto Loaded Rounds
- 3 Crew
- GVW / Performance ~ Same as ICV
- LPT on LAV III Demonstrated Performance
- Isolated 10 Round Replenisher Low in Back with Manual Bypass





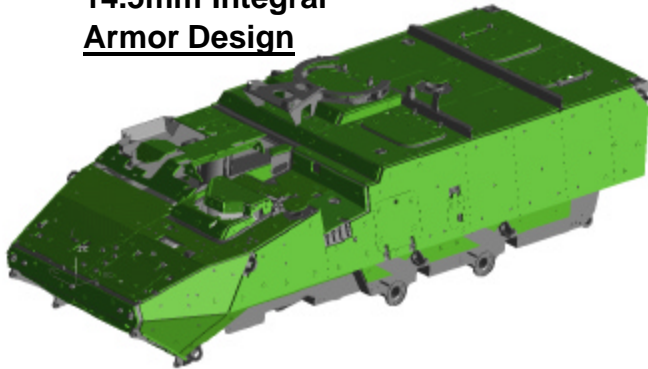


# ***Stryker Survivability***

## ***“Takes a Licking - - Keeps on Ticking”***

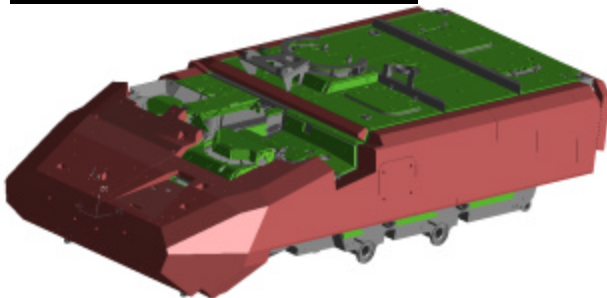


### **14.5mm Integral Armor Design**



- **14.5mm Integral Armor**
  - Requirement for 360 Degree Squad and Crew Protection from 14.5mm Armor Piercing Round
  - Consists of Composite / Ceramic Module Bolted to Hull Structure
  - Part of Base Vehicle Integration

### **RPG Add-on-Armor (AOA)**



- **RPG Add-on-Armor (AOA)**
  - Requirement for 360 Degree Protection Against Hand Held HEAT up to RPG-7
  - Installs Over 14.5mm Armor
  - Block Improvement



# Testing

*“Producing Effective, Suitable & Survivable Combat Systems”*



## ■ Developmental Testing

- 6 MGS
- 4 NBCRV



## ■ Production Verification Testing

- 36 Systems
  - ▲ 7 ICV
  - ▲ 5 MGS
  - ▲ 3 each (MC, CV, RV, ESV, MEV, FSV, ATGM and NBCRV)
- 300,000 RAM Miles
- Environmental Extremes
- Automotive & Weapons Performance
- Mission Equipment Integration



## ■ Live Fire

- 106 (Title 10 USC) Events
  - ▲ 66 Current LRIP (ICV, MC, CV, RV, ESV, MEV, FSV and ATGM)
  - ▲ 38 Future LRIP (MGS and NBCRV)

## ■ Full Compliance with Statutory & Regulatory Guidance

- FAR – First Article Testing
- Title 10 USC – Live Fire Testing
- Title 10 USC – Initial Operational Testing



# Testing

*“Producing Effective, Suitable & Survivable  
Combat Systems”  
(Con’t)*



## ■ Initial Operational Testing

### ➤ Battalion Level

- ▲ 2 Company Teams – Live
- ▲ 1 Company Team – Simulation
- ▲ Battalion & Brigade Slice Elements
  - Engineer
  - Anti – Tank
  - Medical
  - Reconnaissance
- ▲ 54 IAVs Participating

### ➤ Light Infantry Baseline

- ▲ 10<sup>th</sup> Mountain
- ▲ With Augmentation

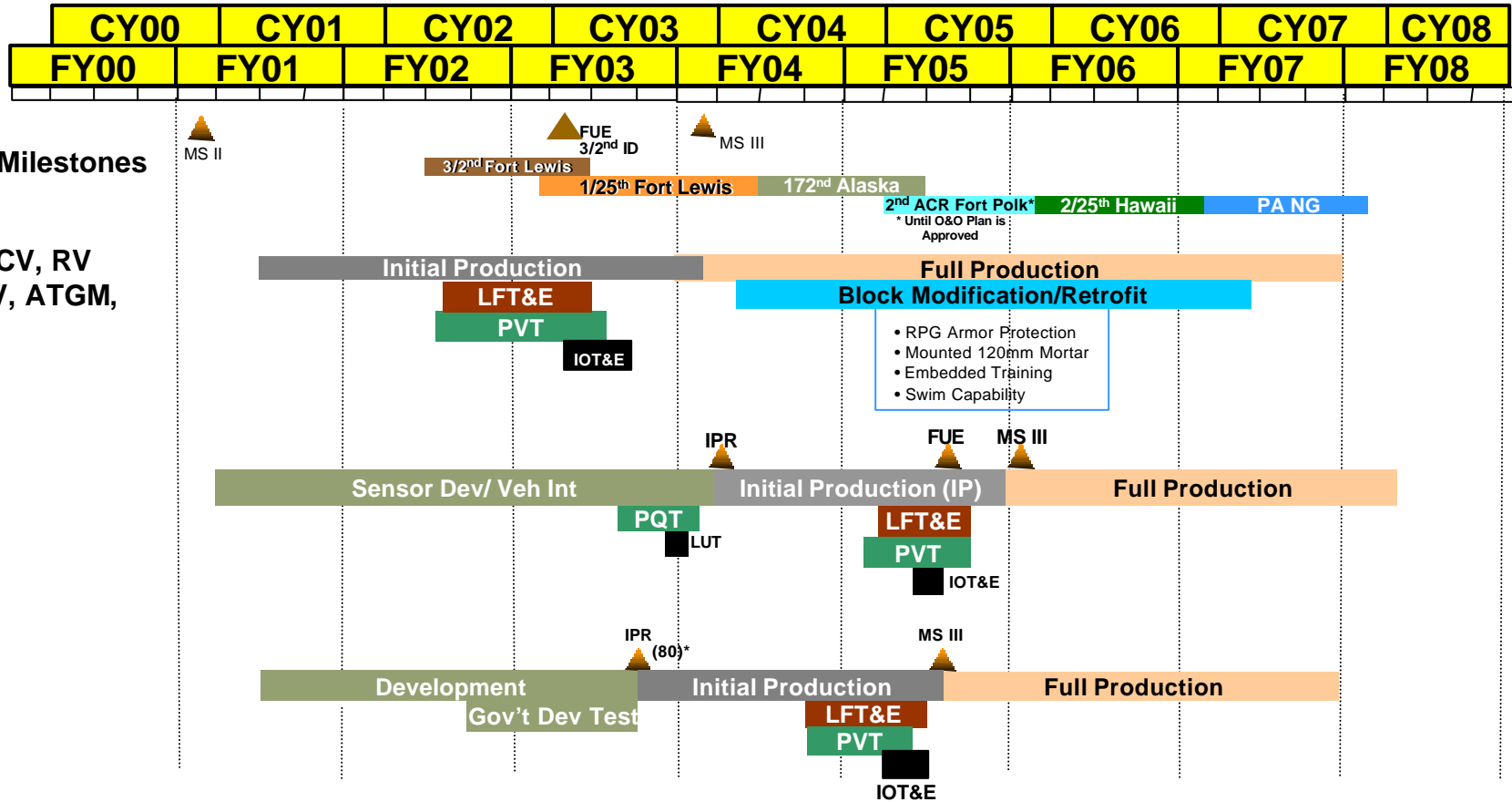






# Integrated Program Schedule

(May 2002)





# QUESTIONS?



## *Stryker...Ready to Roll!*

**Strategic Responsiveness...100%**  
**Tactical and Operational Mobility**



**Combat Capable Upon Arrival**



**Optimized for Close,  
Complex, or Urban  
Terrain..Austere Infrastructure**



**Superior Situational  
Awareness**

**Platform Commonality and  
Efficiencies, Reduced  
Logistics Footprint**

**[Http://www.pmbct.tacom.army.mil](http://www.pmbct.tacom.army.mil)**